

NOTES

Introduction

1. Since the relationship between economics and national security is extremely broad, the analysis here is confined to policies that affect the health and structure of the domestic economy, leaving aside other subjects like export controls and economic sanctions.

Chapter I

2. Paul Kennedy, *The Rise and Fall of the Great Powers* (New York: Random House, 1987), p. 529.
3. Joseph S. Nye, Jr., *Bound to Lead: The Changing Nature of American Power* (New York: Basic Books, 1991), pp. 7, 174, 260.
4. Samuel P. Huntington, "The U.S.—Decline or Renewal?" *Foreign Affairs* 67 (Winter 1988/89), p. 95.
5. Martin Feldstein and Phillipe Bacchetta calculate that, in the short run, capital inflows compensate nearly totally for a decline in national savings, but over the longer run downward movements in national savings lead to nearly equal (70–86 percent) reductions in domestic investment ("National Saving and International Investment," in B. Douglas Bernheim and John B. Shoven, eds., *National Saving and Economic Performance* [Chicago: University of Chicago Press, 1991]), pp. 201–26.
6. It is necessary to differentiate between capital flows in general (whereby foreigners make a comparatively "passive" purchase of an asset that generates a rate of return, like bonds or commercial paper or a portfolio of equities) and direct investment by non-American companies to build or acquire productive facilities. The pace and magnitude of

the latter is much harder to predict than that of the former. Direct foreign investment will receive more detailed treatment in the section on Threat III.

7. The first annual report to the president and Congress by the Competitiveness Policy Council points out that the United States increased its debt much faster over the last decade than it did to finance World War II. See *Building a Competitive America* (Washington, D.C.: Competitiveness Policy Council, March 1, 1992), p. 13.
8. Since the late 1980s, foreign capital inflows have tapered off (see note 5). The low U.S. savings rate leaves American national strategists in a quandary: higher foreign capital inflows open up the prospect of foreign influence and foreign control; lower foreign capital inflows mean fewer resources to improve American productivity, innovation, and output. For further exploration of these issues, including the Who-Is-Us? question about direct foreign investment, see the treatment of Threat III (dependency).
9. A "Made in America" label for the trade deficit does not exonerate others from the charge of unfair trade practices. For evidence that Japan, for example, is packing its trade surplus with high-tech products, so to speak, see Table 4.
10. Koichi Hamada and Kasumasa Iwata, "On the International Capital Ownership Pattern at the Turn of the Twenty-First Century," *European Economic Review* 33 (1989), pp. 1055–85.
11. Thus, even with a shift of resources away from military spending, as Kennedy advocates, the decline in relative economic performance will persist so long as the "peace dividend" is not itself invested in productive uses, whether or not the "nonproductive" consumption comes in a socially appealing form, like improved health care for the elderly poor.

Chapter II

12. Martin Neil Baily and Alok K. Chakrabarti, *Innovation and the Productivity Crisis* (Washington, D.C.: The Brookings Institution, 1988), p. 9. For comparisons of U.S.–Japanese productivity in 29 specific industries, see Dale W. Jorgenson and Masahiro Kuroda, *Productivity and International Competitiveness in Japan and the United States, 1960–1985*, dis-

tributed by the National Academy of Sciences, October 24, 1991.

13. One might want to add investment in public infrastructure as well. Between 1980 and 1989 (the latest figures available on a comparative basis), net government investment as a percentage of gross domestic product was 5.7 percent for Japan, 4.8 percent for Italy, 3.7 percent for Germany, 2.0 percent for Britain, 1.8 percent for Canada, and 0.3 percent for the United States (OECD data), (*New York Times*, January 27, 1992). For the analysis of investment and productivity, see Edward F. Denison, *Trends in American Economic Growth, 1929–1982* (Washington, D.C.: The Brookings Institution, 1985); Edward A. Hudson and Dale W. Jorgenson, "U.S. Energy Policy and Economic Growth, 1975–2000," *Bell Journal of Economics and Management Science* 5 (Autumn 1974), pp. 456–62; Barry P. Bosworth, "Capital Formation and Economic Policy," *Brookings Papers on Economic Activity* 2 (1982); Baily and Chakrabarti, *Innovation and the Productivity Crisis*; Michael F. Mohr, *Diagnosing the Productivity Problem and Developing an Rx for Improving the Prognosis* (Washington, D.C.: Cabinet Council for Economic Affairs, October 1983, unpublished; cited in Baily and Chakrabarti, p. 22); and Ralph Landau, "Capital Investment: Key to Competitiveness and Growth," *The Brookings Review* 8 (Summer 1990). Leaving aside investment in human capital for a moment, all of these analyses show the importance of three categories whose boundaries are difficult to delineate precisely: investment in plant and equipment, investment in pushing out the technological frontier, and investment in diffusing technology once it has been developed. Each of these three categories is sensitive to the cost of capital and the time horizon differential highlighted here. More broadly, Jorgenson and Kuroda have found increases in capital input to be the most important source of economic growth in both the United States and Japan, accounting for as much as 40 percent of U.S. growth and 60 percent of Japanese growth (*Productivity and International Competitiveness in Japan and the United States*). When labor is added, Jorgenson finds that three-fourths of all U.S. economic growth during the 1948–1979 period is accounted for by increases in capital and labor inputs (Dale W. Jorgenson, "Productivity and Postwar U.S. Economic Growth," *Journal of Economic Perspectives* 2 [Fall 1988], pp. 23–41).
14. In general, the integration of capital markets across borders should lead cost of capital differentials to disappear. In this

- vein, Jeffrey Frankel argues, for example, that whereas the cost of capital was lower in Japan than in the United States in the 1970s and the 1980s (due to the high Japanese savings rates), in the 1990s the cost of capital may rise to U.S. rates. Frankel acknowledges that real differences have been perpetuated in the U.S.–Japanese case, despite international arbitrage. As indicated in the text, there are two reasons why the Japanese capital market may remain somewhat segmented, however. First, the integration of capital markets cannot be complete without the integration of product markets as well: borrowing in yen at a cheaper rate than borrowing dollars requires the assumption of an obligation to repay in yen; for American firms (General Motors, Motorola) this requires confidence that borrowers can earn yen to repay the loan by selling products in Japan. If firms lack that confidence, they are effectively denied the ability to assume the yen liability. Second, cost of capital differences are maintained by the inability of American firms to acquire companies in Japan. A net advantage accrues to those firms that have to pay out less to stockholders (and perhaps to lenders as well) if both are willing to accept a lower rate of return. Ordinarily, the prospect of hostile takeovers would keep firms from squeezing shareholders and creditors in this way. Thus, the conspicuous absence in Japan of hostile takeovers by non-Japanese investors helps Japanese firms maintain a lower cost in financing their operations. In addition, as discussed below, the unusual behavior of the United States in imposing double taxation on earnings from capital, whether by taxing dividends twice or by imposing a capital gains tax on retained earnings that show up as gains in share prices, raises the cost of capital to American companies. See Jeffrey A. Frankel, "The Japanese Cost of Finance: A Survey," *Financial Management* (Spring 1991), pp. 95–127. For a skeptical view about cost of capital differences, see W. Carl Kester and Timothy A. Luehrman, "Cross-Country Differences in the Cost of Capital: A Survey and Evaluation of Recent Empirical Studies," unpublished, prepared for the U.S. Council on Competitiveness, May 1991.
15. Benjamin Friedman calculates that the real rate of interest rose from an average of eight-tenths of 1 percent (1951–1980) to 4.7 percent (1981–1990) ("Learning from the Reagan Deficits," unpublished draft 1992). Robert Lawrence has found that macroeconomic volatility may also affect the time horizons of U.S. managers (variable inflation

- rates, sluggish growth rates, fluctuating exchange rates). See *Building A Competitive America*, p. 12.
16. Juliet B. Schor, *The Overworked Americans: The Unexpected Decline of Leisure* (New York: Basic Books, 1992).
 17. Congressional Budget Office, *Educational Achievement: Explanations and Implications of Recent Trends* (Washington, D.C.: GPO, 1987); Mark Dynarski, "The Scholastic Aptitude Test: Participation and Performance," *Economics of Education Review* 6 (1987), pp. 263–273; Eric A. Hanushek and Lori L. Taylor, "Alternative Assessments of the Performance of Schools," *The Journal of Human Resources* 25 (1990), pp. 179–201. The latter shows that achievement growth, or value added over time, is by far the superior measurement of school quality differences.
 18. "National Assessment of Vocational Education," Testimony of John G. Wirt, Lana Muraskin, Robert Meyer, and David Goodman before the House Education and Labor Committee, March 7, 1989, *Economics of Education Review* 8 (1989), pp. 383–92; Jim Bishop, "Incentives for Learning: Why American High School Students Compare So Poorly to Their Counterparts Overseas," *Labor Economics* 11 (1990), pp. 17–51.
 19. *America's Choice: high skills or low wages!* The Report of the Commission on the Skills of the American Workforce (Rochester, N.Y.: National Center on Education and the Economy, June 1990), Chapter 6 and Supporting Information IV: Skills Investment Taxes: Foreign Examples.
 20. See Lawrence Mishel and Ruy A. Teixeira, "Behind the Numbers: The Myth of the Coming Labor Shortage," *The American Prospect* 4 (Fall 1991), pp. 98–103.
 21. A similar case can be made for "defense industry conversion" adjustment assistance to speed the shift of employment from military-related to civilian occupations. See Theodore H. Moran, *Managing the Defense Industrial Base in an Era of Lower Defense Budgets* (Washington, D.C.: Center for Strategic and International Studies, forthcoming 1992).
 22. On the other hand, according to the *Wall Street Journal*, "the Labor Department is making a renewed attempt to repeal trade-adjustment assistance," (January 31, 1992). For the design of more effective trade adjustment assistance policies, see Robert Z. Lawrence and Robert E. Litan, *Saving Free Trade: A Pragmatic Approach* (Washington, D.C.: The Brookings Institution, 1986).

23. See the study reported by Robert E. Lipsey and Irving B. Kravis, "Sorting Out the Trade Problem," *New York Times*, January 18, 1987.
24. For the comparison of assets per worker in domestic versus overseas manufacturing operations, see Laura D'Andrea Tyson, "They Are Not Us: Why American Ownership Still Matters," *The American Prospect* 4 (Winter 1991), pp. 37–53. In general, Lipsey and Weiss have found that the higher a U.S. firm's output in a foreign area, the larger its exports from the U.S. to that area. This relationship is particularly strong between foreign output and exports of intermediate goods for further processing (Robert E. Lipsey and Merle Yahr Weiss, "Foreign Production and Exports of Individual Firms," *The Review of Economics and Statistics* 63 [May 1984], pp. 304–308). See also C. Fred Bergsten, Thomas Horst, and Theodore Moran, *American Multinationals and American Interests* (Washington, D.C.: The Brookings Institution, 1978), Chapter 3.
25. Andrew M. Warner, "Does World Investment Demand Determine U.S. Exports?" International Finance Discussion Papers of the Federal Reserve Board, No. 423, 1992.
26. *Washington Post*, January 22, 1991.
27. Advice cited with ridicule by Robert Kuttner, *The End of Laissez-Faire* (New York: Alfred A. Knopf, 1991), p. 113.
28. *The Highest Stakes: The Economic Foundations of the New Security System* (Berkeley, Cal.: The Berkeley Roundtable on International Economics, draft 1992).
29. See *Industrial Change and Public Policy* (Kansas City: The Federal Reserve Bank of Kansas City, 1983), Chapter 4. This analytic helps sort out the argument that the United States already has an industrial policy; the objective should be to rationalize it and do it right. Those public spending programs that supply resources where the social benefits far exceed what private markets would appropriate (e.g., the agricultural extension service, the public highway system) are clearly justified. Those public spending programs that merely allocate resources differently from how the market would supply them (e.g., investment tax credits that favor the rustbelt but not software development or cad/cam engineering services) are not.
30. Baily and Chakrabarti, *Innovation and the Productivity Crisis*; Gene M. Grossman, "Promoting New Industrial Activities: A Survey of Recent Arguments and Evidence," *OECD Economic Studies* 14 (Spring 1990), pp. 87–125; Linda R. Cohen and Roger G. Noll, *The Technology Pork-*

- barrel (Washington, D.C.: The Brookings Institution, 1991); Manuel Trajtenberg, "The Welfare Analysis of Product Innovations, with an Application to Computed Tomography Scanners," *Journal of Political Economy* 97 (1989), pp. 444–79.
31. For a comprehensively muddled compilation of the pros and cons of a governmental or quasi-governmental civilian technology agency, see the report of the Panel on the Government Role in Civilian Technology, *The Government Role in Civilian Technology: Building a New Alliance* (Washington, D.C.: National Academy Press, 1992). One might want to make the R&D tax credit more readily applicable to expenditures involving participation in consortia of corporations, although the evidence from efforts at joint R&D development has not proved to be as positive as once hoped (either in the United States or abroad, e.g., Japan). For debate about the use of the R&D tax credit and ways to improve its efficacy, see Edwin Mansfield, "Statement to the House Ways and Means Committee on the Effects of the R&D Tax Credit," August 2–3, 1984; Baily and Chakrabarti, *Innovation and the Productivity Crisis*; and David L. Brumbaugh, "The Research and Experimentation Tax Credit" (Washington, D.C.: Library of Congress, Congressional Research Service Issue Brief, May 9, 1991).
 32. Adam B. Jaffee, "Technological Opportunity and Spillovers of R&D: Evidence from Firm's Patents, Profits, and Market Value," *American Economic Review* 76 (1986), pp. 984–99. Baily and Chakrabarti (using a different classification) find five industries accounting for 86 percent of all company funded R&D. The industries are transportation equipment, electrical machinery, nonelectrical machinery, chemicals, and instruments (*Innovation and the Productivity Crisis*, Table 6-1, p. 124). One would also want to provide a stimulus to the 60–65 percent of all smaller manufacturers who have not even adapted the most basic computer-aided design or numerically guided equipment to their operations. U.S. General Accounting Office, *Technology Transfer: Federal Efforts to Enhance the Competitiveness of Small Manufacturers* (Washington, D.C.: General Accounting Office, November 1991).
 33. Zvi Griliches, "Productivity, R&D, and Basic Research at the Firm Level in the 1970s," *American Economic Review* 76 (1986), pp. 141–54; F. R. Lichtenberg and D. Siegel, "The Impact of R&D Investment on Productivity: New Evidence Using Linked R&D–LRD Data," Working Paper No. 2901 (1989), National Bureau of Economic Research. Findings such as this suggest that expanding and strengthening the R&D tax credit may in fact do more to encourage process R&D and speed diffusion of industry "best practices" to smaller subtler firms than the more popular manufacturing technology centers, technology extension programs, and regional technology alliances. One cannot help wishing that there were more rigorous studies of information diffusion, market imperfections, and the role of public sector "extension" or "cooperation" services. Such studies could include a comparison with U.S. agricultural extension programs, and with German and Japanese manufacturing support centers. In the end, there might be an important synergy between strengthening the R&D tax credit and expanding technology "extension service" activities. See John A. Alic, Lewis M. Branscomb, Harvey Brooks, Ashton B. Carter, Gerald L. Epstein, *Beyond Spinoff: Military and Commercial Technologies in a Changing World* (Boston: Harvard Business School Press, 1992). A further implication is that public funds expended via the R&D tax credit would produce stronger results for the civilian sector than funds dispersed via DARPA for dual-use technologies. DARPA's comparative advantage would lie in projects that the civilian sector would otherwise not pursue (or would pursue much less vigorously) on its own. Moreover, a large proportion of DARPA's undertakings are inherently dual use, without having to channel its efforts in that direction.
 34. For overviews, see Paul R. Krugman, ed., *Strategic Trade Policy and the New International Economics* (Cambridge, Mass.: MIT Press, 1986); J. David Richardson, "The Political Economy of Strategic Trade Policy," *International Organization* 44 (Winter 1990), pp. 107–35.
 35. The case for public action to correct for market failure may be presumptively stronger for strategic trade-type industries: given their knowledge intensity, the generation of positive externalities for the societies where they are located might be the appropriate assumption (until demonstrated otherwise), rather than the standard economic postulate that there are no uncompensated spillovers until proven to the contrary. In order to maximize the benefits to the state where the industries are located, one must assume, in addition, that some of the externalities accrue only to the local or national population rather than being spread throughout the global market.

36. On the unexpected success of parallel processing over single-vector processing in supercomputers, see "Future of Big Computing: A Triumph for the Lilliputians," *New York Times*, November 25, 1990. In the supercomputer race, the Japanese technocratic, industrial, and bureaucratic elite bet on single-vector processing. On analog versus digital technologies for HDTV, see Cynthia A. Beltz, *High Tech Maneuvers: Industrial Policy Lessons of HDTV* (Washington, D.C.: AEI Press, 1991). The Beltz study coincides with the Japanese view of the HDTV race, where the government-owned Japan Broadcasting Corporation's "entry . . . is given very little chance of coming out on top for technical as well as political reasons" (*Japan Economic Survey* 16 [January 1992], p. 13). To be fair, success with a portfolio of projects is the appropriate yardstick for judging public policy outcomes, not success in every single project.
37. Richard G. Lipsey and Wendy Dobson, *Shaping Comparative Advantage* (Scarborough, Ontario: Prentice-Hall Canada, 1987), pp. 59, 123.
38. J. David Richardson has found that, under conditions of imperfect competition, trade liberalization leads to efficiency gains that may even run two to three times greater than those under perfect competition ("Empirical Research on Trade Liberalization with Imperfect Competition: A Survey," *OECD Economic Studies* 12 [Spring 1989], pp. 87–125).
39. David C. Mowery and Nathan Rosenberg, "New Developments in U.S. Technology Policy: Implications for Competitiveness and International Trade Policy," *California Management Review* 32 (Fall 1989), pp. 29–38. For a more "nuanced" and sympathetic appraisal of the 1986 Semiconductor Agreement, see Laura D'Andrea Tyson, *Who's Bashing Whom? Trade Conflicts in High-Technology Industries* (Washington, D.C.: Institute for International Economics, forthcoming 1992), Chapter 4.
40. Industrial policy advocates point out, with some justification, that here the preoccupation of conventional economics with consumer welfare is genuinely dissatisfying: on subsidies and dumping, the rigorous economic response is to send the perpetrator a thank-you note; on trade protection, the economic conclusion is that the offending nation is only hurting itself. See Milton Friedman, "In Defense of Dumping," in *Bright Promises, Dismal Performance: An Economist's Protest* (New York: Harcourt Brace Jovanovich, 1983). To justify a public policy of objecting to unfair trade practices, economists resort not to an examination of immediate welfare effects but to an argument that such measures on the part of some actors will produce a political reaction in others that retards the liberalization process itself and/or, in the extreme, provokes trade wars. See Jagdish Bhagwati, *Protectionism* (Cambridge, Mass.: MIT Press, 1989). But the economic complacency about how other nations favor their producers over their consumers may (in some crucial cases) be shortsighted, for the dynamic reasons concerned with gaining unilateral advantage that strategic trade theorists have highlighted.
41. Paulo Guerrieri, "Technology and International Trade Performance of the Most Advanced Countries," cited in Tyson, *Who's Bashing Whom?*, Chapter 2.
42. Kuttner, *End of Laissez-Faire*, p. 11; Prestowitz, *Hearings on the McDonnell Douglas–Taiwan Aerospace Agreement*, Joint Economic Committee, December 3, 1991.
43. Tyson, *Who's Bashing Whom?*, p. 22.
44. Success in negotiating such rules would ultimately require state, as well as federal, agencies in the United States to give up their Buy American guidelines.
45. In the EC, public purchases cover 90 percent of telecommunications equipment sales and one-third of computer sales by American companies; in Japan the percentages covered by public directives may be higher. Kenneth Flamm, "Semiconductors," in Gary Clyde Hufbauer, ed., *Europe 1992* (Washington, D.C.: The Brookings Institution, 1990), Chapter 5.
46. The attempt to place state and municipal subsidies under supranational restraints on high-tech subsidies is likely to be particularly difficult. In attempting to launch the MD-12X, for example, McDonnell Douglas has played American communities off against each other in granting benefits to secure the siting of a new aircraft plant with 10,000 or more jobs ("Towns Spare No Effort to Snare New Plant," *New York Times*, December 18, 1991).
47. U.S. trade law currently defines dumping in terms of a rather high calculation of previous average costs (imputing 10-percent administrative charges and an 8-percent profit rate). Competitive pressures will push all firms' prices toward marginal rather than average cost, however, with the former being lower than the latter frequently over the course of each business cycle (to maximize allocative efficiency national strategists should find this outcome desirable). For strategic trade-type industries, even a calculation

of current marginal cost is inappropriate since companies must invest in large production runs to be successful. This is as true for Intel and Boeing as it is for Fujitsu and Airbus. Thus, some estimates suggest that a large proportion of all high tech firms are technically "dumping," according to U.S. trade law standards, all the time. See Alan V. Deardorff, "Economic Perspectives on Dumping Law," Department of Economics, University of Michigan, Seminar Discussion Paper No. 240, February 8, 1989. For an explanation (and defense) of U.S. laws, see "Subsidies and Dumping: What They Are, Why They Matter" in *Competing Economies: America, Europe and the Pacific Rim* (Washington, D.C.: Office of Technology Assessment, 1991), pp. 138–54.

48. The Semiconductor Agreement of 1991 centered on import targets in the Japanese market and backed away from the export limitations on Japanese products needed to maintain minimum floor prices in the 1986 agreement. For a critique of VIEs, see Bhagwati, *Protectionism*, pp. 80–86. For a more sympathetic view, see Tyson, *Who's Bashing Whom?*, Chapter 1. Tyson argues that "the distinction between negotiating rules and negotiating outcomes is not as straightforward or pure as Bhagwati would have us believe" and can sometimes be used to increase competition. Moreover, as in the Moss Talks (market-oriented, sector-selective trade talks) in several technology-intensive industries in the mid-1980s, the outcome can in principle be applied to all trading partners. Finally, argues Tyson, VIEs may play a useful role in familiarizing users with imports.
49. In GATT negotiations, U.S. policy on dumping has the schizophrenic task of assisting U.S. companies to avoid being subject to unreasonable dumping charges as they attempt to compete abroad while preserving America's system of dumping laws which, in the estimation of the Department of Commerce, would be "quickly undone" if allowed to be opened to GATT scrutiny. See Labor-Industry Coalition for International Trade, *The Uruguay Round: Will It Be a Good Deal for U.S. Manufacturing?* (Washington, D.C.: LICIT, December 1991), and the LICIT pamphlet, "The Dunkel Texts and U.S. Trade Law Remedies," January 8, 1992.
50. See Ludger Schuknecht and Heinrich W. Ursprung, "Anti-Dumping Policies in the U.S. and the EC," University of Konstanz, unpublished draft 1991; Arnold and Porter, "U.S. Government Support of the U.S. Commercial Aircraft Industry," prepared for the Commission of the European Communities, Washington, D.C., November 1991.

Chapter III

51. Every sector produces some "vacuous" products in response to consumer demand. For the agribusiness/agrochemical sector, potato chips may be an example; for the microelectronics sector, perhaps pulsating Christmas tree lights would be a counterpart. The national strategist would want to compare either potato chips with pulsating Christmas tree lights (and be relatively indifferent if both were supplied from outside national borders), or microchips with bioenzymes (and wish that the nation had domestic capabilities in both). "Vacuous" means the cost to the society of doing without them is relatively low and the difficulty of shifting to substitutes is relatively easy; "critical" implies the opposite.
52. In Europe, birthplace of mercantilist and neomercantilist doctrines, the reality of having to incorporate the leading technologies, products, and processes rapidly and continuously into the national economy to keep up with rival states led to quite high levels of dependence (even in weapons systems) despite a professed preference for autarchy. See Andrew Moravcsik, "Arms and Autarchy in Modern European History," in *Searching for Security in a Global Economy*, *Daedalus* 120 (Fall 1991), pp. 23–47.
53. See Theodore H. Moran, "The Globalization of America's Defense Industries: Managing the Threat of Foreign Dependence," *International Security* 15 (Summer 1990), pp. 57–100.
54. "U.S. Business Access to Certain State-of-the-Art Technology" (Washington, D.C.: General Accounting Office, September 1991, NSIAD-91-278). Non-Japanese firms were not a significant component of this study.
55. The use of a concentration test in no sense implies that dependence upon external suppliers is merely an antitrust problem, or should be relegated to Justice Department jurisdiction. While the four-four-fifty rule can be operationalized in terms of the Herfindahl index and made compatible with Hart-Rodino guidelines for mergers and acquisitions, its use for national strategists lies in signaling a credible threat of denial on the part of foreign firms (or their home governments). Concentration in the global market, not the domestic market, is the relevant standard. See the report of the General Accounting Office, *Foreign Vulnerability of Critical Technologies*, forthcoming 1992. For

- further discussion of concentration measures, see Edward M. Graham and Michael E. Ebert, "Foreign Direct Investment and National Security: Fixing the Exon-Florio Process," *The World Economy* 14 (September 1991), pp. 245–268.
56. Many industry appeals for protection on national security grounds do not formally take the Section 232 ("national security") route in U.S. trade law.
 57. From an economist's point of view, a subsidy is less distortionary than a tariff. The choice of a tariff in this analysis reflects a judgment that, for the United States, on-budget subsidies are less palatable politically and less feasible fiscally than an off-budget solution. Thus, the choice of a tariff reflects the second-best analysis of the preceding section, but avoids the third-best options of VRAs or VERs.
 58. The semiconductor industry may (or may not) be a case in point.
 59. Charles L. Schultze has estimated that more than 30 percent of the trade flows among the major industrial powers is intra-industry trade, examined at a relatively close (three-digit) level of detail ("Industrial Policy: A Dissent," *The Brookings Review*, 2 [Fall 1983], p. 8).
 60. The data do suggest, however, that there may be higher imports on the part of foreign subsidiaries, as well as a propensity to buy from related companies, at least among Japanese investors. See Edward M. Graham and Paul R. Krugman, *Foreign Direct Investment in the United States*, 2nd edition (Washington, D.C.: Institute for International Economics, 1991); Robert Z. Lawrence, "Efficient or Exclusionist? The Import Behavior of Japanese Corporate Groups," *Brookings Papers on Economic Activity* (1991), pp. 311–30.
 61. Robert B. Reich, "Who Is Us?" *Harvard Business Review* 90 (January-February 1990), pp. 53–64.
 62. *Foreign Direct Investment in the United States* (Washington, D.C.: U.S. Department of Commerce, June 1991). A greenfield investment in which a foreign firm set up operations from scratch (instead of acquiring a domestic firm) and proceeded to drive local rivals from the market would be similarly worrisome but might be more likely to meet the performance requirement objective (below).
 63. For a similar case of proposed acquisition in which the international industry was unduly concentrated, see the Semigas case ("U.S. to Fight High-Tech Firm's Sale," *Washington Post*, December 29, 1990).

64. In the crucible of conflicting governmental directives U.S. firms have not infrequently put their own interests first in siding with host pressures over the dictates of their home government. There is some evidence companies from other countries (Britain, France) have done the same. But would Japanese, Korean, Taiwanese, or German firms? For evidence from the 1973 oil embargo through the Soviet gas pipeline case of 1982, see Moran, "Globalization of America's Defense Industries."
65. Graham and Krugman, *Foreign Direct Investment*, pp. 98–102.
66. "Data Sought on Thomson Deals with Libya, Iraq," *Washington Post*, April 30, 1992.
67. Reinforcing this conclusion, there would likely be a gradual shift of production and technological upgrading from the United States to France in the Thomson-CSF proposal, despite initial performance requirements. LTV's array of subcontractors already includes competitors on both sides of the Atlantic. Over time, one might expect greater levels of assembly and product improvement to be awarded to Aerospatiale, Cruesot Loire, SNP, and GIAT and less to be done by FMC, Atlantic Research, Honeywell, and Brunswick if the acquisition were allowed to proceed. The fact of French government ownership in Thomson-CSF opens the door to subsidies and other unfair pricing arrangements that could enable the French parent or its suppliers to underbid their American counterparts. See Testimony of Theodore H. Moran before the Subcommittee on Defense Industry and Technology, Senate Armed Services Committee, April 30, 1992.
68. For the idea of the Golden Rule standard, see Theodore H. Moran and David C. Mowery, "Aerospace and National Security," forthcoming 1993.
69. For a recommendation to strengthen U.S. government capabilities to "respond intelligently to proposals for assistance from specific industries" along these lines, see the Competitiveness Policy Council report, *Building a Competitive America*, p. 33.
70. Paul Krugman and Richard Baldwin have suggested that the welfare gains to Europe do not justify the cost ("Industrial Policy and International Competition in Wide Bodied Jet Aircraft," in Robert Baldwin, ed., *Trade Policy Issues and Empirical Analysis* [Chicago: University of Chicago Press, 1988], pp. 45–71). Laura Tyson has countered that Krugman and Baldwin do not adequately include the dynamic

gains from learning how to be successful in aerospace via Airbus. The analysis here suggests that to the dynamic calculation a "national security premium" to avoid the dependence-on-a-foreign-monopolist threat should be added. In the end, the Europeans might well conclude, however, that \$12–\$15 billion over twenty years (the amount of the subsidies to Airbus) is too much to pay.

71. I am indebted to Laura Tyson for this characterization of my argument.
72. Beyond the economic implications of such reciprocity, this "exchange of hostages" might mute the home country political impulse to issue extraterritorial diktats to offshore affiliates, as in the Soviet gas pipeline or Kyocera cases; it would also set in place a structure of interest groups disposed to resist such extraterritorial interventions.
73. See the *Hearings on the McDonnell Douglas–Taiwan Aerospace Agreement*, Joint Economic Committee, December 3, 1991. For earlier discussion of the FSX controversy, see James E. Aver, "The U.S.–Japan FSX Agreement: Cooperation or Confrontation in High Technology," *Business in the Contemporary World 2* (Summer 1990), pp. 105–12.
74. Reported in Thomas H. Lee and Proctor P. Reid, eds., *National Interests in an Age of Global Technology* (Washington, D.C.: National Academy Press, 1991), p. 26.
75. Luis Kraar, "Boeing Takes a Bold Plunge to Keep Flying High," *Fortune*, September 25, 1980, p. 79.
76. Moran and Mowery, "Aerospace and National Security." For an in-depth discussion of corporate alliances, see Peter F. Cowhey and Jonathan D. Aronson, *Managing the World Economy: The Consequences of Corporate Alliances* (New York: Council on Foreign Relations Press, forthcoming 1993).

Chapter IV

77. On the revenue side, the United States in fact taxes its population less heavily than other industrial states. Government receipts as a percentage of gross domestic product put France at 47 percent, Germany at 45 percent, Italy at 41 percent, Britain at 40 percent, Canada at 40 percent, Japan at 33 percent, and the U.S. at 32 percent (OECD figures for 1989, the most recent available), (*New York Times*, January 27, 1992).

78. There might be tactical priority given to obtaining nationality-blind procurement practices in strategic trade-type industries (putting their needs for equal access high on the list of concessions demanded in bilateral and multilateral negotiations, to ensure against shutting one country or another out of a given generation of products) but not the quantitative demands of managed trade. It should be noted that the strategic-trade rationale for rapid results is conceptually distinct from the "cultural differences" rationale advanced by Prestowitz and Van Wolferen; for the latter, on negotiating grounds alone, the United States will gain tactical success more consistently by setting priorities among American demands rather than simply insisting that others open their markets in general (i.e. we should tell the Japanese that semiconductor sales are more important than rice sales, or vice versa, and not simply insist that free trade is a good thing), (Prestowitz, *Trading Places*; Karel G. van Wolferen, "The Japan Problem," *Foreign Affairs* 65 (Winter 1986/87), pp. 288–303).
79. The integrationist approach to extreme cases of potential global monopoly (e.g., Boeing versus Airbus) would be to allow nations the right to sponsor programs to fund domestic competitors so long as firms of all nationalities were eligible to participate.
80. For prior recommendations along these lines, see Raymond Vernon, "The Multinationals: No Strings Attached," *Foreign Policy*, No. 33 (Winter 1979), pp. 121–34.
81. The "realist" school of international relations theory predicts that as American preeminence disappears the United States will be prone to favor relative gains over mutual gains in its interactions with other industrial powers. Some members of the realist school have urged the United States deliberately to place the outcome of international negotiations at risk unless we obtain a previously specified distribution of benefits ("American national interest would be better served by a policy based on specific reciprocity, a policy that paid more attention to short-term payoffs, outcomes rather than procedures," Stephen Krasner has written. "Such a policy would not push the world down a slippery slope of growing protectionism . . ."). But in an environment of ongoing macroeconomic misalignment in the United States, a policy of trying to improve America's position vis-à-vis its major rivals by insisting on larger relative gains in international negotiations will be both economically futile and politically wearing. Indeed prompt

tit-for-tat retaliation, often recommended in game theory to discourage defection from cooperative solutions, is likely to be a recipe for escalation rather than dampening of conflict in a setting of persistent macroeconomic imbalances. For a review of the realist argument (along with mixed evidence about the extent to which the United States has actually moved toward a relative gains perspective), see Michael Mastanduno, "Do Relative Gains Matter? America's Response to Japanese Industrial Policy," *International Security* 16 (Summer 1991), pp. 67–89. For the Krasner quotation, see Stephen D. Krasner, "A Trade Strategy for the United States," *Ethics & International Affairs* 2 (1988), pp. 46–59. The broader tit-for-tat strategy to "elicit cooperation" can be found in Judith L. Goldstein and Stephen D. Krasner, "Unfair Trade Practices: The Case for a Differential Response," *American Economic Review* 74 (May 1984), pp. 282–87. Goldstein and Krasner do suggest that their tit-for-tat recommendation should be focused on violation of GATT rules and nontariff barriers covered by international agreements, but they also include antidumping as an exemplary area for more active retaliation.

ABOUT THE AUTHOR

Theodore H. Moran is Karl F. Landegger Professor and Director of the Program in International Business Diplomacy, School of Foreign Service, Georgetown University. Dr. Moran is also Professor and member of the Executive Council, Georgetown School of Business Administration.

In addition to some fifty scholarly articles, he has published nine books, including *Governments and Transnational Corporations* (forthcoming), *Investment in Development: New Rules for Private Capital?*, with contributors, (Overseas Development Council); *Multi-national Corporations: The Political Economy of Foreign Direct Investment* (Lexington Books); *Managing International Political Risk: Strategies and Techniques*, ed. with Fariborz Ghadar and Stephen Kobrin (Overseas Private Investment Corporation); *American Multinationals and American Interests*, with C. Fred Bergsten and Thomas Horst (Brookings); and *Multi-national Corporations and the Politics of Dependence: Copper in Chile* (Princeton University Press).

Professor Moran has taught at Harvard, Vanderbilt, the Paul H. Nitze School of Advance International Studies, and the Colorado School of Mines. He received his Ph.D. in government from Harvard in 1971. Since then he has been a consultant to corporations, governments, and multilateral agencies on investment strategy, international negotiations, and political risk assessment.

Former member of the Policy Planning Staff of the Department of State, Dr. Moran was appointed Chairman of the Pew Foundation's Economic Freedom Fellows Program in 1992, which trains emerging leaders from the former Soviet Union and other countries in the transition to market economies. In 1992 he also became a Senior Research Associate of Business Executives for National Security.

Dr. Moran's current work deals with high tech business policy, international trade and investment, and national security.